TRYPANOSOMA EVANSI AND *ORNITHODORUS CROSSI*

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A series of experiments recently published by Cross (1921-23) suggests that *Trypanosoma evansi* of the camel in India is biologically transmitted by the tick *Ornithodorus crossi*, Brumpt, 1921. Cross fed *Ornithodorus crossi* on dogs heavily infected with *T. evansi* and found that when the ticks were, after various intervals, subsequently fed on clean animals, some of the latter became infected. In his earlier paper (1922) he states that ' These ticks transmitted the disease to healthy rabbits sixty-seven, eighty-three and one hundred and one days after feeding on an infected-surra animal, but they were not infective after one minute to forty-six days. This would apparently show that there is a life cycle of the trypanosome within the tick ' ; and in a later paper (1923) that ' These ticks were found capable of spreading the disease to a healthy animal seventeen days and one month after feeding on an infected animal.'

On 10 January, 1923, we received from Captain Cross about two hundred *Ornithodorus crossi*, which had been on 4 December, 1922, fed on a dog with numerous *T. evansi* in its blood. These ticks were divided into four batches, the first three being fed on rabbits and the fourth on a guinea-pig. Between January and June, 1922, the ticks were given frequent opportunities of feeding, but none of the rabbits nor the guinea-pig became infected. It should be mentioned that from the time of their arrival in England, viz., 10 January, 1923, the ticks were kept in an incubator at about 20° C.

It occurred to us, however, that a possible explanation of the failure of these ticks to infect was the fact that immediately after

the infecting feed they were subject to relatively low temperatures during their journey from India to England in the month of December. In order to examine this question Captain Cross sent us a second supply of about two hundred *Ornithodorus crossi*, which were fed on a heavily infected dog on 23 July, 1923. These ticks, which were received by us on 24 August, 1923, were divided into two batches, each of which was allowed to feed on a rabbit on 24 August, and at frequent intervals subsequently up to date: no infection resulted.

We have no explanation to offer for these negative results, but the subject is one of such considerable practical importance as to demand re-investigation.

In order to ascertain what happens to trypanosomes taken into the stomach of the ticks, we fed on 27 June, 1923, a number of the first lot sent by Captain Cross on a rabbit in the blood of which were numerous *T. rhodesiense*. Two months later, two of these ticks were dissected and were found to contain blood in which large numbers of motionless trypanosomes were not only easily recognisable, but were in a state of remarkable preservation. A suspension in normal saline solution of the stomach contents of one of these ticks was inoculated into a mouse intraperitoneally, but failed to produce an infection. In a second, similar, experiment, a tick was dissected on the day after it had fed on a rabbit infected with *T. rhodesiense*. The trypanosomes found in this tick were also motionless and appeared to be dead, and when inoculated intraperitoneally into a mouse failed to infect it.

This observation does not, of course, touch the question of the possible biological development of *T. evansi* in the ticks, but is of interest in showing that trypanosomes which die rapidly in the stomach of the tick remain there for prolonged periods in an excellent state of preservation.

REFERENCES

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